

Summary of Exhibits

The attached Exhibits 1 through 5 are plots and graphs illustrating some of the results of Urban Airshed Modeling performed by the Lake Michigan Air Directors Consortium. This modeling work was done to evaluate the air quality impacts of USEPA's proposed Nitrogen Oxides reduction rule (hereafter referred to as the "SIP call"), as well as other levels of reduction, both within and without the Lake Michigan Region. LADCO looked at air quality impacts within the Lake Michigan region, a larger region (called Grid M) which includes the Lake Michigan states and all or parts of adjacent states, and within the entire Ozone Transport Assessment Group region. These results are also discussed in the technical comments submitted to USEPA by the Lake Michigan Air Directors Consortium on behalf of its member states,¹ which are incorporated herein.

Exhibit 1 These plots show, for the June and July 1991 episodes, the ozone increases and decreases that occur when the Lake Michigan states reduce NO_x emissions to the levels required in USEPA's SIP call compared to Clean Air Act mandated controls in the OTAG domain.

They show that most of the ozone decrease occurs within the Lake Michigan states, with some reduction occurring, on some days, in adjacent states and Canada. They also show that ozone levels increase in some areas on some days with the additional NO_x reductions.

Exhibit 2 These plots show, for the June and July 1991 episodes, the ozone increases and decreases that occur when all of the states in Grid M reduce to the SIP call levels compared to Clean Air Act mandated controls in the OTAG domain).

They show that ozone decreases are greater within the Lake Michigan region and that the geographic extent is broader. However, impacts still are limited to an area relatively comparable to the Grid M region. Comparing Exhibits 1 and 2 shows the additional, significant ozone decreases that occur in Indiana when NO_x reductions occur throughout Grid M.

Exhibit 3 These plots show, for the June and July 1991 episodes, the incremental change in ozone levels when NO_x reductions are increased incrementally from Clean Air Act mandated controls to 55%, from 55% to 65%, from 65% to 75% and from 75% to 85%. The corresponding tonnage of NO_x reduction is charted graphically. They also show the daily peak ozone for each day of the two episodes under each of the control scenarios.

¹The LADCO member states are Illinois, Indiana, Michigan and Wisconsin, hereafter referred to as the "Lake Michigan States."

They show that the tonnage of NO_x reduced decreases as higher levels of control are imposed. They also show that the bulk of the ozone decreases occur by the 65% control level; improvement is not as large after that, due to the lesser amount of NO_x that is reduced between the 65% and 85% control levels.

Exhibit 4 These plots show the eight hour ozone values for both the June and July 1991 episodes under three scenarios: the base case, the mandated Clean Air Act controls case, and the SIP call case. They also show the difference in eight hour ozone values between Clean Air Act mandated controls and the SIP call.

They show widespread nonattainment across Grid M under the base case and increasing improvement with the two levels of control. Even under the SIP call scenario, however, many areas within Grid M, including Indiana, still appear to be exceeding the eight hour standard. EPA has not finalized policy in determining compliance with the eight hour standard and these results are not definitive. Therefore, much more air quality modeling work is needed to evaluate measures needed for the new standard.

Exhibit 5 These plots examine the NO_x disbenefit issue. The first map shows areas outlined in red where LADCO has examined selective implementation of NO_x controls because of concerns that reducing NO_x will lead to ozone increases in the densely populated metropolitan areas. The remaining plots show, for two episode days, the difference between peak ozone levels between two scenarios: the SIP call reductions applied across all of Grid M and the SIP call reductions applied everywhere except the areas outlined in red.

These plots show that ozone levels do increase as a result of additional NO_x reductions in the identified areas. However, the days included are early in the episode, when ozone levels were relatively low. Lesser increases occur on days with higher ozone levels.